

**REMARKS**

The Office Action of December 10, 2008, and the references cited therein have been carefully considered.

In this response, the specification has been amended to correct the informality pointed out by the Examiner and to provide section headings, and the claims have been amended to correct both the informalities indicated by the Examiner and other minor informalities noted upon a review of the claims. Additionally, claim 1 has been amended to more clearly define the control and to make the claim more definite.

In view of the above amendments, it is submitted that the objections to the specification and claims have been overcome and should be withdrawn.

Applicants traverse and request reconsideration of the rejections of claims 1-3, 6, and 8 under 35 U.S.C. §103(a) as being unpatentable over the patent to Corriveau (U.S. 6,178,928) in view of the patent to Goubeaux (U.S. 5,022,234).

Amended independent claim 1 is directed to a method for the closed-loop control of a thermostat (11) in a cooling circuit of an internal combustion engine (1), wherein, by use of a valve or valves in the thermostat, a small coolant circuit without a radiator (2) and a large coolant circuit with a radiator (2) can be separated from one another or connected to one another in a temperature-controlled manner, or connected to one another in a mixing mode with a mixing ratio with closed-loop control of the temperature. An operating unit of the valves in the thermostat (11) is triggered by control means (5) in response to input control parameters to set the desired coolant temperature by opening and closing the valves in the thermostat. According to the invention, the cooling temperature is selectively set to one of a plurality of prespecified desired coolant temperatures, with the closed-loop control for each prespecified desired coolant temperature involving first and second closed-loop control phases. The first closed-loop control phase is in the form of basic adaptation (40), with stored control parameters setting the current prespecified desired coolant temperature as quickly as possible. After the respective current desired coolant temperature is reached, the second closed-loop control phase in the form of fine adaptation (41), with variable control parameters

keeps the ~~currently~~ current prespecified desired coolant temperature as constant as possible. Such a control arrangement is submitted not to be rendered obvious by the cited combination of references.

In rejecting the claims, the Examiner essentially has taken the position that the patent to Corriveau teaches the method recited in claim 1, except for the claimed first and second closed-loop control phases for the temperature; the patent to Goubeaux discloses a two mode, i.e., course and fine, control method for the pressure of a compressor; and, consequently, it would have been obvious to use the two-mode pressure control method of Goubeaux to control the coolant temperature in the method of Corriveau. This conclusion of the Examiner is respectfully traversed. It is submitted initially that one skilled in the art would not consider combining the teachings of the respective references in the manner suggested in the Office Action, except possibly through the use of hindsight in light of Applicants' disclosure. Moreover, even if the teachings of the two references could be combined in some manner, the result would not be the invention defined in independent claim 1 or the claims dependent thereon.

The patent to Corriveau does disclose a method of controlling the coolant temperature of an internal combustion engine provided with a cooling system arrangement as recited in claim 1 and does disclose changing the device set point as must be done to adapt the cooling rate in order to control the engine temperature (e.g., column 6, lines 57-61). The teaching of Corriveau is to change setting points to maintain as constant a temperature as possible. In this regard, see claim 1 and the enabling disclosure therefor. The disclosed control method is entirely different from that recited in claim 1 and not only does not teach a two-mode control as recognized by the Examiner, but also does not teach or suggest providing a plurality of predescribed different temperature levels to which the control may be selectively set based on input parameters. The portion of the Corriveau patent cited for this purpose, in fact, does not disclose or suggest such different temperature levels.

The patent to Goubeaux discloses a two-mode control method for a PWM in order to find the correct setting point for the compressor of an air conditioning system when the compressor has been changed or there are discrepancies among a series of

compressors. See column 2, lines 25-29. Accordingly, Goubeaux appears to disclose finding the correct setting parameters for each compressor. See column 2, lines 46 and 47. It is submitted that such a teaching has little if anything in common with controlling an engine temperature. That is, a control algorithm, which looks for the settings of a compressor to keep the pressure on a predetermined level, discloses nothing about temperatures. To understand the temperature behavior of a system, it must control the mass flow of the cooling agents. Pressure tells about the capacity to control the mass flow, but draws no conclusions regarding the mass flow itself. Moreover, controlling pressure does not make anticipations about temperature. Temperature is additionally influenced by volume and volume changes and, as shown in FIG. 3 of Goubeaux, by the ambient air temperature. Therefore, an algorithm working with pressure will not work for temperatures. Additionally, Goubeaux does not disclose control with a plurality of different prescribed temperature levels or pressure levels, but only course and then fine adjustment of the pressure to a given set value. Consequently, It is submitted that since the basic technical teachings of the two reference are entirely different and do not fit together, one skilled in the art would not consider combining them. Moreover, even if they were combined, there would be no teaching or suggestion of selectively controlling the temperature to one of a plurality of predescribed temperature levels using a two-mode or phase, closed-loop control method as defined in claim 1. Accordingly, for the above-stated reasons, It is submitted that claim 1 is allowable over the combination of the Corriveau and Goubeaux patents under 35 U.S.C. §103(a).

Claims 2, 3, 6 and 8 are all dependent on claim 1 and thus are submitted to be allowable for at least the same reasons as that claim. Claim 3 recites that if the prescribed desired temperature levels is changed, the method simply causes the new temperature level to be achieved using fine adaptation. Since the references do not teach control at different prescribed temperature levels, this feature also is not present. Claim 6 recites that the current desired coolant temperature is selected from at least three different predescribed desired coolant temperatures as a function of the load. In the rejection, the Examiner acknowledges that Corriveau does not disclose the claimed method and then refers to column 3, lines 42-51, as disclosing this feature. While the

mentioned portion of the reference discloses that many temperature and other data values are stored in the ROM, including relationships between temperature and load, it does not teach the limitation of claim 6, i.e., that there three distinct levels of temperature control based on load. Accordingly, for these additional reasons, these claims are allowable over the cited combination of references.

The rejection of claims 4, 5, and 7 under 35 U.S.C. §103(a) as being unpatentable over the noted Corriveau-Goubeaux combination in view of the patent to Dao (U.S. 6,304,803) has been noted and is respectfully traversed. Reconsideration is respectfully requested. In this ground of rejection the Dao patent is cited simply to show that it is known or obvious to determine the ambient temperature and to use same in the manner recited in the claims. However, even if, for the sake of argument, the Examiner's conclusions with regard to these claims are accepted, the Dao patent does not overcome the deficiencies of the basic combination as discussed above with respect to claim 1 from which these claims depend. Accordingly, it is submitted that claims 4, 5 and 7 are allowable over the cited combination of the Corriveau, Goubeaux and Dao references for at least the same reasons as claim 1.

In view of the above amendments and for the above-stated reasons, it is submitted that each of pending claims 1-8 is allowable over the art of record and is in condition for allowance. Therefore, the allowance of all pending claims and passage of this application to issue are respectfully requested.

However, if the Examiner is of the opinion that the prosecution of this application would be advanced by a personal interview, the Examiner is invited to telephone undersigned counsel to arrange for such an interview.

To the extent necessary during prosecution, Applicants hereby request any required extension of time not otherwise requested and hereby authorize the Commissioner to charge any required fee not intentionally omitted, including application

processing, extension, extra claims, statutory disclaimer, issue, and publication fees, to Deposit Account No. 08-1135.

Respectfully submitted,  
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